

THE INVENTION IS CLAIMED AS:

- 1 1. A dialysis catheter comprising:
2 a tube having an implantable portion extending from an external patient
3 portion, the implantable portion having a curved segment between the external
4 patient portion and a distal end of the implantable portion;
5 a first lumen extending through the tube from a first lumen port in the
6 external patient portion to a first lumen port in the curved segment of the
7 implantable portion; and
8 a second lumen extending through the tube from a second lumen port in
9 the external patient portion to a second lumen port in the implantable portion, the
10 second lumen port in the implantable portion being spaced away from the first
11 lumen port in the curved segment.
- 1 2. The dialysis catheter of claim 1, further comprising at least
2 one implant cuff on the implantable portion of the tube.
- 1 3. The dialysis catheter of claim 1, wherein the first lumen port
2 in the curved segment comprises a plurality of openings at an outer radial surface
3 of the curved segment.
- 1 4. The dialysis catheter of claim 3, wherein the plurality of
2 openings are substantially round holes.
- 1 5. The dialysis catheter of claim 3, wherein the plurality of
2 openings are slots.

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- 1 6. The dialysis catheter of claim 1, wherein the implantable
2 portion has a coiled shape at the distal end.
- 1 7. The dialysis catheter of claim 6, wherein the second lumen
2 port in the implantable portion comprises a plurality of holes.
- 1 8. The dialysis catheter of claim 6, wherein the second lumen
2 port in the implantable portion comprises a plurality of slots.
- 1 9. The dialysis catheter of claim 1, wherein the implantable
2 portion has a substantially straight shape at the distal end.
- 1 10. The dialysis catheter of claim 9, wherein the second lumen
2 port in the implantable portion comprises a plurality of holes.
- 1 11. The dialysis catheter of claim 9, wherein the second lumen
2 port in the implantable portion comprises a plurality of slots.
- 1 12. The dialysis catheter of claim 1, wherein the tube is a single
2 tube having a septum between the first and second lumens.
- 1 13. The dialysis catheter of claim 1, wherein the first lumen port
2 in the curved segment is a patient inflow port.
- 1 14. The dialysis catheter of claim 1, wherein the second lumen
2 port in the implantable portion is a patient outflow port.
- 1 15. The dialysis catheter of claim 1, wherein the first lumen
2 terminates prior to the distal end of the implantable portion.
- 1 16. A dialysis catheter comprising:

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4 a patient inflow section extending from the connection section and having
5 a patient inflow opening to the patient inflow lumen;

6 a separation section extending from the patient inflow section; and

7 a patient outflow section extending from the separation section and
8 having a patient outflow opening to the patient outflow lumen.

1 17. The dialysis catheter of claim 16, wherein when the catheter
2 is in a substantially unstressed condition, the connection section is substantially
3 straight, the patient inflow section is curved, and the separation section is
4 substantially straight.

1 18. The dialysis catheter of claim 17, wherein the patient outflow
2 section is coiled.

1 19. The dialysis catheter of claim 17 wherein the patient outflow
2 section is substantially straight.

1 20. The dialysis catheter of claim 16, wherein the patient inflow
2 section is an uppermost portion of an implantable portion of the catheter and the
3 patient outflow section is a lowermost portion of the implantable portion of the
4 catheter.

1 21. The dialysis catheter of claim 16, wherein the connection
2 section, patient inflow section, separation section, and patient outflow section

1 26. The peritoneal dialysis catheter of claim 25, wherein the
2 second fluid opening is located at a non-linear shaped section of the implantable

3 portion.

1 27. The peritoneal dialysis catheter of claim 25, wherein the
2 second and fourth fluid openings are separated by a substantially linear tube
3 section which is absent fluid openings to an exterior of the catheter.

1 28. The peritoneal dialysis catheter of claim 25, wherein the
2 second fluid opening is located at a vertically uppermost portion of the implantable
3 portion and the fourth fluid opening is located at a vertically lowermost portion of
4 the implantable portion.

1 29. A dialysis catheter comprising:
2 a substantially straight connection section;
3 a non-linear patient inflow section extending from the connection section;
4 a separation section extending from the patient inflow section;
5 a patient outflow section extending from the separation section;
6 a patient inflow lumen extending from the connection section to the
7 patient inflow section; and
8 a patient outflow lumen extending from the connection section to the
9 patient outflow section.

1 30. The dialysis catheter of claim 29, wherein the separation
2 section has a substantially straight shape.

1 31. The dialysis catheter of claim 29, wherein the patient outflow
2 section has a coiled shape.

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1 32. The dialysis catheter of claim 29, wherein the patient inflow
2 section has a curved shape of about 180°.

1 33. A peritoneal dialysis catheter having first and second
2 lumens, comprising:
3 a dialysis machine connection section having fluid ports to the first and
4 second lumens;
5 a non-linear section extending from the connection section and having a
6 fluid port to the first lumen;
7 a separation section extending from the non-linear section; and
8 a distal end section extending from the separation section and having a
9 fluid port to the second lumen.

10 34. The peritoneal dialysis catheter of claim 33, wherein the first
11 lumen is a patient inflow lumen and the second lumen is a patient outflow lumen.

12 35. The peritoneal dialysis catheter of claim 33, wherein the non-
13 linear section has a curved shape and the fluid port in the non-linear section is
14 pointed in a direction opposite the fluid port in the distal end section.

15 36. A method of flowing fluid through a catheter comprising the
16 steps of:

17 flowing fluid into a first lumen at a proximal end of the catheter;
18 flowing the fluid in the first lumen to a curved path of the first lumen;
19 flowing the fluid in the curved path through a fluid opening in the curved

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1 path and out of the catheter;
2 flowing the fluid which exited the catheter from the opening in the curved
3 path into a second lumen at a distal end of the catheter; and
4 flowing the fluid in the second lumen to a fluid opening at the proximal
5 end of the catheter and out of the catheter.

1 37. A method of implanting a catheter into a patient comprising
2 the steps of:
3 straightening the catheter with a stylet inside of the catheter;
4 inserting a distal end of the straightened catheter through an entrance
5 incision into a peritoneal cavity of the patient while directing the straightened
6 catheter downward;
7 removing part of the stylet from the catheter while advancing the catheter
8 into the peritoneal cavity until the distal end is located in a lower area of the
9 peritoneal cavity and a distal implant cuff is seated in a rectus muscle of the
10 patient;
11 rotating a portion of the stylet and catheter outside of the patient
12 downward and a portion of the stylet and catheter inside of the patient upward;
13 and
14 pulling the catheter through a subcutaneous tunnel having an exit site
15 below the entrance incision.

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